

which produced symptoms and signs suggestive of an acute abdominal condition are reported.

2. A summary of similar cases in the literature is furnished.

3. An explanation for massive hematoma in the rectus muscle, occurring in upper respiratory conditions, is presented by a study of autopsy findings of the influenza epidemic of 1917.

4. The practical surgeon is enjoined to consider rectus-muscle hematoma in cases of the acute abdomen following a respiratory infection.

6777 Hollywood Boulevard.

### FOOD POISONING APPARENTLY DUE TO HOLLANDAISE SAUCE

By J. C. GEIGER, M. D.

AND

W. J. RAGAN

San Francisco

THREE separate and unrelated outbreaks of food poisoning were reported to the San Francisco Department of Public Health. The illness was estimated to have affected several hundred persons. The third outbreak was reported in December, 1937. All the outbreaks occurred in a first-class hotel; and though suspicion was cast upon the "Hollandaise sauce" in each, none of the sauce was available for examination except in the last. In this outbreak twenty persons were affected.

The clinical evidence appeared conclusive for food poisoning—namely, symptoms of nausea, abdominal pain, vomiting, and diarrhea being present two to six hours after the meal. Likewise, the epidemiologic evidence appeared conclusive as to the "Hollandaise sauce" being the causative food factor. The resulting laboratory examination of the "Hollandaise sauce" was interesting. The pH electrometrically was 4.65 after being several days old, but in fresh material the pH was 6.31. Investigation further indicates a wide discrepancy among the chefs of San Francisco hotels as to the manufacture of the sauce, the main difference being the use of vinegar, which was indeed rare, if used at all. The sauce generally consists of egg yolk, melted butter, salt, cayenne pepper, with a small amount of lemon juice, and no vinegar, strained through cloths. This composition, with its pH, coupled with the fact that the sauce may be "incubated" or kept warmed on or in a steam table for twelve to eighteen hours, suggests that the presence of demonstrable hemolytic staphylococci and the production of gastro-intestinal irritant substances, may be due entirely to growth of the organisms. The causative sauce revealed numerous colonies of hemolytic staphylococci, which organisms, when grown in sauce made similarly, proved toxic when injected into laboratory animals. Examinations of stools and throat cultures of the food handlers involved in the manufacture of the causative sauce were negative for organisms of the paratyphoid-enteritidis group or for hemolytic staphylococci.

On the basis of the epidemiologic and laboratory evidence it would appear that sauces manufactured as, and containing such materials as in the "Hollan-

daise" recorded, and stored or incubated for hours in kitchens, offer a suitable vehicle for the production of food poisoning in humans. From the laboratory evidence one might deduce that specific contamination may have been general, such as from ingredients, hands, apparatus, straining cloths, skin or the respiratory tract, and that multiplication of the bacteria was due to the excellence of the medium and of the incubation.

Curiosity as to the source of hemolytic staphylococci cannot be readily or reasonably met, since these organisms are not uncommon in the types found on the skin and in the respiratory tract of man. Since the advent of this group of bacteria into the realm of food poisoning in man, any laboratory evidence so obtained may have to be regarded as circumstantial, and closely allied with the epidemiology. Further, field investigations as to the incidence of hemolytic and other staphylococci in normal foods and their entero-toxico-genicity appear necessary. There is no doubt that the organisms are common and exceedingly difficult to eliminate. Therefore, the question naturally arises as to their appearance in foods not involved in outbreaks of food poisoning. Moreover, what conditions, artificial or experimental, must be linked to have poisonous products produced?

Conclusions. An outbreak of food poisoning, affecting twenty persons, is reported in a first-class hotel from so-called "Hollandaise sauce." The epidemiologic, bacteriologic, and toxicologic evidence appears conclusive as to the food and to the causative organism, hemolytic staphylococci. The specific source of the contamination was not determined. Executive orders, however, of the San Francisco Department of Health now prescribe exact directions for the manufacture, storage and use of such sauces in hotels and restaurants.

101 Grove Street.

### ALLERGY TO LIVER EXTRACT

By W. E. DIEFENBACH, M. D.

AND

ANTON S. YUSKIS, M. D.

La Jolla

ALLERGY to liver extract, acquired as a result of injections, is reported only four times in the American literature and five times in foreign literature. In the American reports, Metzger<sup>1</sup> in 1931 described an asthmatic reaction following the administration of liver extract. Held and Goldbloom<sup>2</sup> described a reaction characterized by an urticaria. Crip<sup>3</sup> described a marked reaction consisting of severe asthma and a generalized urticaria, and Krantz<sup>4</sup> described a generalized urticaria following the parenteral administration of liver extract.

<sup>1</sup> Metzger, Edward: Bronchial Asthma Caused by Liver and Liver Extract Diet in a Patient Suffering from Primary Anemia, *J. A. M. A.*, 96:110 (Jan. 10), 1931.

<sup>2</sup> Held, I. W., and Goldbloom, A. A.: Addison-Biermer's Anemia (Pernicious Anemia); Report of a Case Showing Allergic-like Phenomena to Liver Extract, *J. A. M. A.*, 96:1361-1363 (April 25), 1931.

<sup>3</sup> Crip, Leo H.: Allergy to Liver, *J. A. M. A.*, 110:506 (Feb. 12), 1938.

<sup>4</sup> Krantz, Clement I.: Anaphylactic Reactions Following Medication with Parenteral Liver Extract, *J. A. M. A.*, 110:802 (March 12), 1938.